

Work Order ID 123962

123962

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September-04-14 11:53:44 AM

Item ID: D6003-102

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Crosstube, 206

Start Date: 9/04/14 Start Qty: 40.00

40

Cust Item ID:

Required Date: 11/16/15 Req'd Qty: 40.00

40

Customer:

Reference: 3/25/16

Approvals: Process Plan: MJS

Date: 1409-04

Tooling:

Date:

Run Start *NR1*

QC

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
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D6003	Rev A
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100		0.00
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100

PURCHASING

Purchasing

Memo

0.00

Purchasing

Issue P/O 25798

a) Extrude as per Dwg D6003

b) Materials 7075-T6/T6511 (WW-T-700/7 or QQ-A-225/9 or QQ-A-200/11)

seamless aluminum tube

c) Minimum ultimate tensile strength = 77 ksi

d) Minimum tensile yield strength = 66 ksi

e) Material certification is required

EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS.

MUST BE WELL PACKAGE, IF NOT IT WILL BE REFUSE

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Crosstube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐
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Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Inspection Strip in Tube ☐ Marks/Chatter ☐ Turning Sequence ☐ Wave/Twist in Tube	General ☐ Bend ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Burrs ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Drawing ☐ Drill Holes ☐ Finish ☐ Fit/Function	☐ Folio/Program ☐ Grain ☐ Hardware ☐ Inspection Incomplete/Unqualified ☐ Instructions Incomplete/Unclear ☐ Misaligned/off center ☐ Mislabeled ☐ Misread ☐ Off-set ☐ Out of Calibration ☐ Out of Sequence	☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Positioned Wrong ☐ Power Loss/Surge ☐ Pressure/Forced ☐ Set-up ☐ Temperature/Cure ☐ Weld ☐ Wrong Stock Pulled ☐ Other
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Work Order ID 123962

123962

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September-04-14 11:53:44 AM

Item ID: D6003-102 Accept *N900040100* Setup Start *NS1*
Revision ID: Stop *NS2*
Item Name: Crosstube, 206
Start Date: 9/04/14 Start Qty: 40.00 *40* Cust Item ID:
Required Date: 11/16/15 Req'd Qty: 40.00 *40* Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
110	Receive & Insp for Damage & Mat'l Certs	0.00							
110									
Packaging	Memo	0.00							
Packaging	Ensure material certification is attached								
120	QC6- Inspect dimensions to drawing	0.00							
120									
QC	Memo	0.00							
Quality Control	Ensure Material certification comply to Dwg D6003								
130	Chemical Conversion Coat per OSI005 4.1	0.00							
130									
HandFinish	Memo	0.00							
Hand Finishing									

2/4x Sp16-03-A

4/9 DAS 38 9-89

16 2016

DAS 38 9-89

Aluminiumwerk Unna AG · Uelzener Weg 36 · D-59425 Unna

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ONT, K6A1K7
Kanada

Aluminiumwerk Unna AG
Uelzener Weg 36 · D-59425 Unna
Postfach 11 46 · D-59401

fon +49 (0) 23 03-206 - 0
fax +49 (0) 23 03-206- 116
info@alunnatubes.com
www.alunnatubes.com

page: 1
date: 10.02.2016
customer: 40980

delivery note

92154

your PO dated: 16.09.2014
your PO No.: P025798
confirmation No.: 54642

contact: Petra Eisenblätter
Tel.: +(303) 755 5672
Fax: +(303) 755 5936
representative: CLAUS J. BETTER

CARRIER: Senator International
Your VAT No.:
AWU VAT No.: DE177869055
Country of origin: Germany

We supply acc. to our delivery terms and conditions:

item	quantity	unit	net kgs
600	44,000	PC	

despatch date change

AWU article: 35317 / Tariff no. 76082081

Customer article: D6003-102 ✓ 2.250 X 0.435 X 102

product: Tubes / ~~seamless extruded~~ / EN AW-7075 / round

condition: T 6511 / AMS-QQ-A-200/11(A)

outer diameter:	2,250 INCH Tol.	+0,012	-0,012
tol. for mean OD		+0,006	-0,006
inner diameter:	1,380 INCH		
wall thickness:	0,435 INCH Tol.	+0,044	-0,044
fixed length	102,000 INCH Tol.	+0,125	

inspection cert. acc. to EN10204/3.1 / RM 531 / Rp0,2: 455

straightness 0,01 INCH / 1 FEET / RMS max.: outer 25

tol. on quantity +10 % -10 % / scurfed

2.250" OD 0.435" Wall, 102" lengths

Part Number D6003-102 crosstube

Surface Finish max. RMS 25

Tolerances per ASTM B210 / your drawing D6003

Tubes protected with corrosion protective oil

Tubes line marked

SP/6-03-11

Commerzbank AG, Unna
Konto-Nr. 102 56 00 · BLZ 443 400 37
BIC/S.W.I.F.T. - Code: COBADE FF 443
IBAN: DE 90 4434 0037 01025600 00
Sitz der Gesellschaft: Unna
Amtsgericht Hamm, HRB 3045
Vorstand: Thomas Wiese
Vorsitzende des Aufsichtsrats: Irene Wiese

- Allgemeine Liefer- und Zahlungsbedingungen - (für den gewerblichen Verkehr)

1. Vertragsabschluss und Vertragsbeziehung

1.1. Angebot

1.2. Bestellung

2. Preise

2.1. Preisänderungen

3. Eigentum und Verschleiß

4. Abrechnung

5. Haftung und Versicherung

6. Kündigungsrecht

8. Haftung für Mängel

12. Sonstige Bestimmungen

13. Endgültigkeit

delivery note

92154

page: 2
date: 10.02.2016
customer: 40980

Packing: seaworthy wooden cases
number of packages: 1
number of pieces: 44

SP/6 - 03-11

item	quantity	unit	net kgs
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800	18,000	PO	
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despatch date change

AWU article: 36783 / Tariff no. 76082081

Customer article: D6008-132 3.250 X 0.438 X 132

product: Tubes / seamless extruded / EN AW-7075 / round

condition: T 6511 / AMS-QQ-A-200/11(A)

outer diameter:	3,250 INCH Tol.	+0,016	-0,016
tol. for mean OD		+0,008	-0,008
inner diameter:	2,374 INCH		
wall thickness:	0,438 INCH Tol.	+0,044	-0,044
fixed length	132,000 INCH Tol.	+0,125	

inspection cert. acc. to EN10204/3.1 / RM 531 / Rp0,2: 455

straightness 0,01 INCH / 1 FEET / RMS max.: outer 25

tol. on quantity +10 % -10 % / scurfed

3.250" OD 0.438" Wall, 132" lengths

Part Number D6008-132 crosstube

Surface Finish max. RMS 25

Tolerances per ASTM B210 / drawing D6008

Tubes protected with corrosion protective oil

Tubes line marked

Packing: seaworthy wooden cases
number of packages: 1
number of pieces: 18

Terms of payment: 30 days after date of delivery
terms of delivery: DDP(Delivered,Duty,Paid)

weight:	gross	1148,500	net	939,000
Packstücke	2			

customer address:

DART AEROSPACE LTD.
1270 Aberdeen Street
HAWKESBURY ON K6A 1K7
Canada

- Allgemeine Lieferungs- und Zahlungsbedingungen - für den internationalen Verkehr

1. Vertragsgegenstand

2. Preis

3. Zahlungsbedingungen

4. Verpackung

5. Zustellungsbedingungen

6. Recht und Gerichtsstand

7. Abnahme

8. Haftung

9. Sonstiges

10. Sonstige Bedingungen

11. Sonstige Bestimmungen

12. Sonstiges

Abnahmeprüfzeugnis 3.1 - DIN EN 10204:2005

Inspection Certificate 3.1 - DIN EN 10204:2005 / Certificat de Reception 3.1- DIN EN 10204:2005

Kunde: Dart Aerospace Ltd.
Client:

1270 Aberdeen Street
K6A1K7 Hawkesbury, ON Canada

Zeugnisnummer: 132/16

Cert No.: / No. du certificat:

Bestellnummer:

Order No. / No. de commande

Auftrag:

54642/600

Our Reference/Notre Reference:

Produkt: Rohre nahtlos gepresst

Product / Produit: Tubes seamless extruded

Spezifikation: AMS - QQ - A - 200/11; -

Specification:

Werkstoff: 7075

Alloy/Alliage:

Zustand: T 6511

Temper/État

Abmessung 2,250 INCH x 1,380 INCH x 0,435 INCH x 102,000 INCH

Size / Dimension

D6003-102

Kennzeichnung

Marking/Marquage:

ALUnna - Cert No. 132/16 - 7075 - T 6511 - Cast No. 4344 - AMS - QQ-A - 200/11 - 2.250" OD X 0.435" Wall - Heat Lot No. 1402667 - ALUnna Order Conf. No. 54642/600-1- PO. 25798

Lieferung

Delivered Material / Matériel délivre:

pcs.

lbs

Country of Manufacture: Germany

44

1133

Products are in accordance with applicable RoHS

1. Chemische Analyse

Chemical Analysis / analyse chimique

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni	Na
Charge/ - min.			1,2		2,1	0,18	5,1							
Cast No. max.	0,40	0,50	2,0	0,30	2,9	0,28	6,1	0,20						
4344/15	0,128	0,175	1,428	0,062	2,266	0,215	5,710	0,035	0,003	0,0152	0,0001	0,0016	0,0050	0,0002

Hydrogen content: 0,09

ccm/100 g Al Elements without indication < 0,01 %

country of melt manufacturer: Germany

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) ksi	yield (Rp0,2) ksi	elongation 2" %	elongation A %	Hardness HB	Heat Lot No.
	81,0	73,0	7,0			
1	82,505	75,110	10,0			1402667
2	81,925	74,385	10,0			

RMS: outside 25 - max. 10,6 µ"

**Ergebnis der
Prüfungen:**

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

Test results:

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

Resultats:

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

morgardtri



Certified acc. DIN EN ISO 9001:2008 and DIN EN 9100:2009

valid until 2016-11-10

Cert.- Reg. No.: 001959 QM08; 001959 ASH 09-1

04.02.2016

Aluminiumwerk Unna AG, Uelzener Weg 36, 59425 Unna, Germany



ALUnna

Abnahmebeauftragter

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: D6003-102
DATE: 16-03-17

PO / BATCH NO.: 1025798 / B123962

MATERIAL CERT REC'D: yes
QUANTITY RECEIVED: 44
QUANTITY INSPECTED: 44
QUANTITY REJECTED: 0

THICKNESS ORDERED: .435"
THICKNESS RECEIVED: .428"
SHEET SIZE ORDERED: U/A
SHEET SIZE RECEIVED: U/A

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL	(Y)	N	
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT MATERIAL	(Y)	N	QA-A-200/11
CORRECT REF # TO LINK CERT	(Y)	N	1025798
CORRECT MATERIAL IDENTIFICATION	(Y)	N	B123962
CORRECT M# ON THE MATERIAL	(Y)	N	2
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
TYPE OF MATERIAL SIZE OF TEST SAMPLE HARDNESS / DUROMETER READING	HRC	HRB	DUR A	DUR D	

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
DAS INSPECTED BY: <u>9</u> DATE: <u>16-03-18</u>		SIGNED OFF BY: _____ DATE: _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

MATERIAL RECEIPT INSPECTION FORM

INSTRUCTIONS FOR INSPECTING BAR, TUBING, ROUND, & SHEET STOCK

- 1- VERIFY STOCK TO DART PURCHASE ORDER
- 2- MEASURE ALL DIMENSIONS FOR EACH PURCHASED STOCK
 - a. WIDTH, THICKNESS, DIAMETER, WALL THICKNESS & LENGTH
- 3- VERIFY CONDITION OF MATERIAL i.e. DAMAGED, CORRODED, etc.
- 4- VERIFY THAT SUPPLIER HAS A NUMBER (HEAT #) ON ITS RECEIVING REPORT TO LINK TO MATERIAL CERTS
- 5- VERIFY MATERIAL CERTS ARE CORRECT TO THE DART PO INSTRUCTIONS
- 6- REMOVE / CUT A PIECE OF MATERIAL FOR SAMPLE HARDNESS TESTING

INSTRUCTIONS FOR INSPECTING SKIDTUBE & STEP EXTRUSION

- 1- VERIFY TO DART SUPPLIED DRAWING
- 2- SAMPLE INSPECT MATERIAL IN BUNDLE TO ENSURE MATERIAL CAN BE RECEIVED INTO DART
- 3- USING PORTABLE HARDNESS TESTER VERIFY HARDNESS OF THE MATERIAL TO THE DRAWING
- 4- VERIFY THAT MATERIAL CERTS MATCH TO WHATS CALLED UP ON THE DART DRAWING

AFTER MATERIAL PASSES INSPECTION

- 5- HAVE DART EMPLOYEES START STOCKING MATERIAL BUT REQUEST MIN **20pcs** FOR FULL INSPECTION
- 6- INSPECT ALL DIMS AS PER DRAWING REQUIREMENTS

INSTRUCTIONS FOR INSPECTING CROSS TUBE MATERIAL

- 1- VERIFY MATERIAL CERTS MATCH THE REQUIREMENTS ON THE DART DRAWINGS
- 2- INSPECT MIN. HALF THE BATCH OF EXTRUSION RECEIVED INTO DART
- 3- INSPECT MATERIAL AS PER THE EXTRUSION REPORT
 - a. WALL THICKNESS USING ULTRA-SONIC IN 4 LOCATIONS
 - b. OUTSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
 - c. INSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
 - d. STRAIGHTNESS @ CENTER OVER 12" SPAN
 - e. WALL THICKNESS USING TUBE MICROMETER HIGHEST/LOWEST BOTH ENDS
- 4- IDENTIFY EACH TUBE IN SEQUENCE OF INSPECTING (TUBE 1, TUBE2.....) AND W/O# AND PO#
- 5- RECORD ALL FINDINGS ON EXTRUSION REPORT

IF ANY QUESTIONS PLEASE SEE QC COORDINATOR BEFORE GOING FURTHER

EXTRUSION INSPECTION SHEET

TUBE #	TOTAL LENGTH	SIDE A		SIDE B		Measurement unit		Inches		Symbol			
		DIA		DIA		INSIDE DIA	wall thickness measured w/vern	Strightness at 12" in middle	Ro				
		R1	R2	R1	R2								
DWG													
1	102	2.249	2.256	2.248	2.252	1.372	0.433	0.440					
2	102	2.245	2.252	2.251	2.253	1.374	0.437	0.443					
3	102	2.251	2.257	2.250	2.258	1.375	0.0438	0.0446					
4	102	2.253	2.254	2.252	2.256	1.374	0.437	0.443					
5	102	2.247	2.256	2.250	2.259	1.374	0.432	0.444					
6	102	2.256	2.247	2.252	2.252	1.373	0.428	0.447		N/A			
7	102	2.250	2.247	2.248	2.251	1.377	0.427	0.445		N/A			
8	102	2.252	2.254	2.249	2.255	1.376	0.427	0.447		N/A			
9	102	2.250	2.255	2.257	2.258	1.370	0.445	0.440		N/A	Middle		
10	102	2.251	2.253	2.251	2.252	1.375	0.444	0.440		N/A	Middle		
11										N/A	Middle		
12										N/A	Middle		
13										N/A	Middle		
14										N/A	Middle		
15										N/A	Middle		
16										N/A	Middle		
PART #		D6003-102				P/O#		25798		BATCH #		8123962	

DAS
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MAR 16 2019